

Claims

[c1] A valve comprising:

a valve body with an axial fluid flow bore therethrough and a flow control element residing therein rotatable between open and closed positions; a bracket formed integral with the valve body and spaced laterally therefrom on an integral support defining an open access area between the bracket and the valve body;

a valve stem having a first end engaging the flow control element and extending through a stem bore in the valve body to a second end centered in a bore in the bracket;

a contiguous packing gland secured around the stem in the open access area for securing packing rings around the valve stem in the stem bore;

a shoulder with an enlarged outer diameter formed on the stem in the open access area adjacent the bracket and supporting a first slide bearing surface, wherein the outside diameter of the shoulder is less than an inside diameter of the bracket bore in the bracket;

a contiguous shear bushing disposed between the

stem shoulder and the bracket and supporting a second slide bearing surface opposing the first slide bearing surface, wherein the shear bushing has an outside diameter larger than the inside diameter of the bracket bore and an inside diameter less than the outer diameter of the stem shoulder;

wherein the stem has an overall length less than a distance from a bottom of the fluid flow bore to the bottom of the bracket to allow insertion or removal of the contiguous shear bushing about the stem in the access area laterally between the second end of the stem and the bracket only when the flow control element is not present in the fluid flow bore.

[c2] The valve of claim 1, wherein the second end of the stem is disposed at or below a top surface of the bracket.

[c3] The valve of claim 1, wherein the flow control element is a ball having an axial bore there through.

[c4] The valve of claim 3, further comprising means for attaching a handle or actuator to the second end of the stem.

[c5] The valve of claim 3, wherein the shear bushing is disposed in a cavity in an underside of the bracket.

[c6] The valve of claim 3, wherein the outer surface of the

ball includes a coating selected from chromium carbide, tungsten carbide, chromium oxide, nitride and boride.

[c7] The valve of claim 3, further comprising an upstream insert and a downstream insert positioned about the fluid control element in the fluid flow bore and forming a seal on either side of said fluid control element.

[c8] The valve of claim 7, further comprising a handle shouldered in an enlarged portion of the bracket bore opening to a top of the bracket.